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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,191

04/09/2004

Joseph Mazzochette

14123-19

2359

7590

07/19/2006

DOCKET ADMINISTRATOR
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EXAMINER

LEE, GUNYOUNG T

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/822,191

Applicant(s)

MAZZOCHETTE ET AL.

Examiner

Gunyoung T. Lee

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/21/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment has been entered:
 - Claims 1-9 have been amended;
 - Claims 1-9 are still pending in this application, with claim 1 being independent.
2. The corrected or substituted drawings (Fig. 4 and Fig. 6) were received on April 21, 2006. These drawings are approved.

Claim Objections

3. Claim 8 is objected to because of the following informality:
 - On line 3 of claim 8, "the cooling of molten metal" lacks antecedent basis.

Appropriate correction is required.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

5. Claims 1, 3-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Stopa et al. (US 6,318,886) in view of Yoganandan et al. (US 6,949,771).
6. In regard to claims 1, 3-9, Stopa et al. disclose a high flux LED assembly for a vehicle (col. 1, lines 21-25) having:
 - A substrate (48) having a surface and including a highly thermal conductive heat spreader (40) (col. 4, line 66-col. 5, line 2);

- A plurality of light emitting diodes (LEDs) (30) (col. 3, lines 50-52) supported by the surface, the LEDs arranged in an array to provide illumination;
 - At least one reflective barrier (10) at least partially surrounding each LED (30) the reflective barrier (10) shaped to reflect away from the LED light emitted by other LEDs in the array;
 - The LEDs (30) and the reflective barrier (10) thermally coupled to the heat spreader (40) to dissipate heat generated by the LEDs (col. 2, lines 13-28);
 - Wherein the at least one reflective barrier (10) comprises a periodic array of troughs (14) and reflective ridges (Fig. 3), the ridges shaped to reflect away from an LED light from an LED in an adjacent trough (14);
 - Wherein at least one reflective barrier (10) comprises an array of cups (12), each cup (12) substantially peripherally surrounding an LED to reflect light away from adjacent LEDs;
 - Wherein the at least one reflective barrier (10) comprises a plurality of reflective circular sectors (18, 20) arranged in a circle, each reflective sector shaped to reflect away light from other sectors in the array;
 - Wherein the at least one reflective barrier (10) comprise a cavity (12) having reflective walls (18, 20) and smoothly curve reflective edges;
 - Where the at least one reflective barrier (10) is shaped to provide directional illumination
7. Stopa et al. do not expressly disclose that the reflective barrier (10) is thermally conductive. However, Stopa et al. disclose that the reflective barrier is a molded plastic

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component (col. 3, lines 58-59), and moldable thermal conductive plastics are commercially available (col. 4, line 67 – col. 5, line 2). Yoganandan et al. disclose a light emitting diode (LED) light source for a vehicle (col. 1, lines 56-58) with a thermally conductive reflective barrier (224) (col. 4, lines 20-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the thermally conductive reflective barrier as shown in Yoganandan et al. using a moldable thermal conductive plastic for the high flux LED assembly of Stopa et al., for the purpose of improving the heat dissipation in the LED assembly to operate it at higher power for enhanced brightness.

8. Please note regarding claim 8 that the patentability of a product in an apparatus claim does not depend on its method of production (see MPEP § 2112).

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stopa et al. (US 6,318,886) and Yoganandan et al. (US 6,949,771) as applied to claim 1 above, and further in view of Singh et al. (US 6,259,838).

10. In regard to claim 2, Stopa et al. and Yoganandan disclose the invention substantially as claimed except for a low temperature co-fired ceramic on metal (LTCC-M) heat spreader. However, Stopa et al. disclose that the heat spreader (40) comprises a thermally conductive ceramic (col. 4, line 66 – col. 5, line 2). Singh et al. disclose a flat panel display having light emitting diodes (col. 4, lines 28-30) and a LTCC-M heat spreader (20) (col. 6, lines 12-19). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the LTCC-M heat spreader of Singh et al. for

the high flux LED assembly of Stopa et al., for the purpose of providing strength with preferable thermal conductivity to keep the high flux LED system at stable condition at a high temperature environment.

Response to Arguments

11. Applicant's arguments regarding amended claims 1, 3-9 are **Moot** because the applicant's amendments necessitated the new grounds of rejection by introducing new considerations, "thermally conductive reflective barrier" in the claims.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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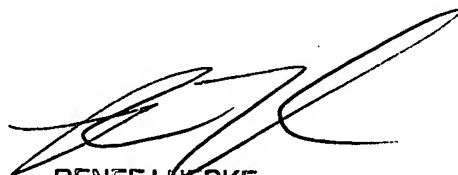
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunyoung T. Lee whose telephone number is (571) 272-8588. The examiner can normally be reached between 7:30 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea can be reached at (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GTL

7/13/2006



RENEE LUEBKE
PRIMARY EXAMINER